CHAPTER 15
RECORDS AND REPORTS

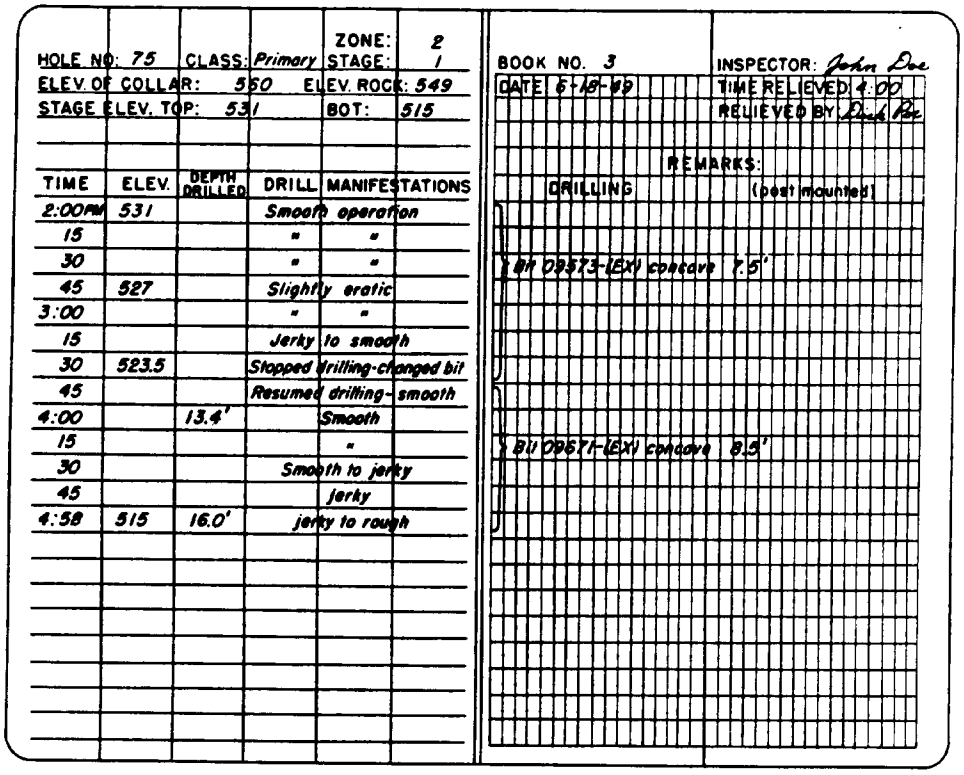
15-1. General. Those assigned to the inspection and supervision of foundation grouting operations will need to keep an accurate record of the work as it is done, since very little evidence of accomplishment is visible after work of this nature is completed. One function of those having the overall responsibility for the prosecution of the work is to instruct the personnel who are in intimate contact with the grouting operations as to notes and data required, and when and to whom the reports are to be submitted. These notes are part of the job history and will also be required to determine the payment quantity. The sample notes shown in figures 15-1 through 15-5 are included for the purpose of illustrating the scope and character of the records.

Hole No. 23-2, Primary — Sta. 23+20
Zone 4 — Axis El. 564.4
75'-100'; Inc. 25°

Date: 6/21/62 — Water table about 20'
Shift: 1600-2400 hrs — Press. test: 0.5 c.m @ 10 psi 6/19/62
Inspector: J. Jones

Time	Mix	Cement Sacks	Grout Cu. ft	Tank Reading	Gage Pressure	Grout cu ft/min	Cement cu ft/hr	Remarks
1738	4:1	3	13.5	120 cu. ft.	0			Started grouting at 1738 hrs
1743				9.5	10	0.5		Vertical depth to Zone 4 is 68'
1751		2	9.0		18	0.75	10.0	Add 42psi for 2:1 & 49 psi
1803	3:1	3	10.5		15	0.8	13.8	for 1:1. Add 38psi for
1816		3	10.6		15-0	0.9	16.0	3:1 grout. Delay 1828 -
1830		3	10.5		0-15	0.9	15.0	1830 hrs. Water line broken
1842		3	10.5		20	0.95	16.4	1810 hrs. Repaired at
1853	2:1	3	7.5		20	0.9	22.5	1828 hrs. Pressure at 0
1901		3	7.5		20	0.9	22.5	during delay.
1909		3	7.5		20	0.9	22.5	
1917		4	10.0		20	0.9	21.8	
1928		4	10.0		25	0.9	21.8	Checked area for leaks at 1905
1939		4	10.0		26	0.8	19.2	" " " " " 1945
1951.5		4	10.0		26	0.75	17.8	
2005		4	10.0		26	0.5	11.4	
2026	3:1	3	10.5		27	0.75	12.9+	
2040		3	10.5		30	0.6	10.6	
2057		3	10.5		30	0.5	9.1	
2117		3	10.5		30	0.35	6.0	
2147		2	7.0	4.5+7.0	30			
2152				10.8		0.14		
2157				10.6		0.04		Completed grouting at 2157 hrs.
		60.0		1.5	(line & pump)			
		3.5		12.1	Carried			
		56.5			forward			

Figure 15-1. Sample grouting log



HOLE NO: 75 CLASS: Primary ZONE: 2
ELEV. OF COLLAR: 550 ELEV. ROCK: 549 STAGE: 1
STAGE ELEV. TOP: 531 BOT: 515

TIME	ELEV.	DEPTH DRILLED	DRILL MANIFESTATIONS
2:00PM	531		Smooth operation
15			" "
30			" "
45	527		Slightly erratic
3:00			" "
15			Jerky to smooth
30	523.5		Stopped drilling-changed bit
45			Resumed drilling- smooth
4:00		13.4'	Smooth
15			"
30			Smooth to jerky
45			jerky
4:58	515	16.0'	jerky to rough

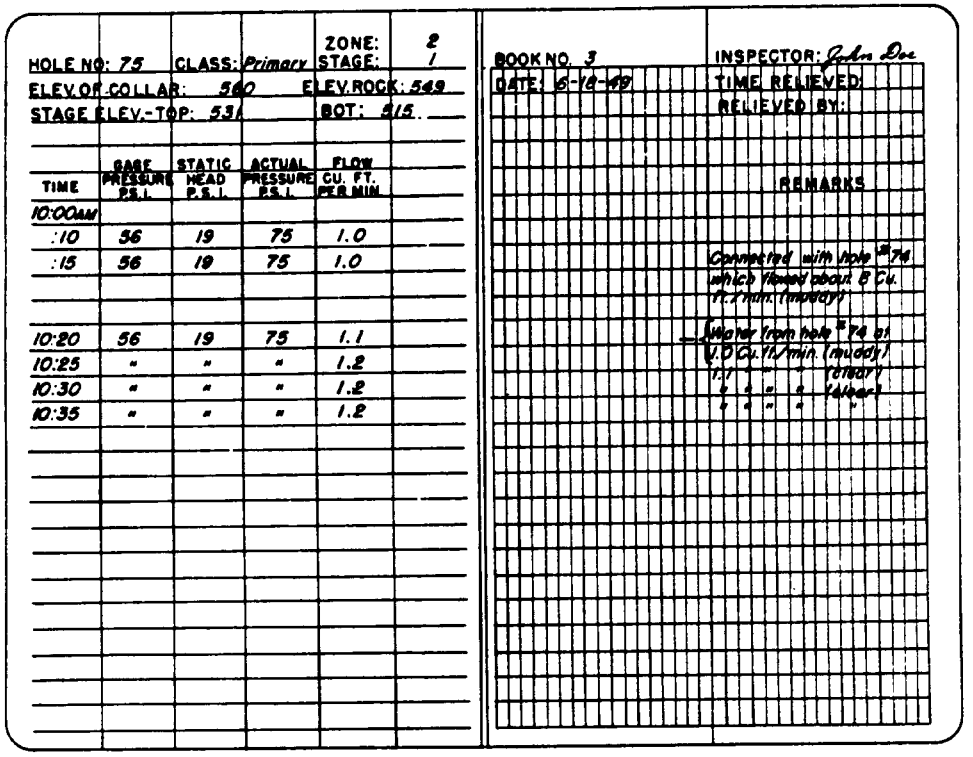
BOOK NO. 3 INSPECTOR: John Doe
DATE 6-18-83 TIME RELIEVED 4:00
RELIEVED BY Dick Roe

REMARKS:
DRILLING (post mounted)

Bit 09573-(EX) concave 7.5'

Bit 09571-(EX) concave 8.5'

Figure 15-2. Sample notes for noncoring drilling



HOLE NO: 75 CLASS: Primary ZONE: 2
ELEV. OF COLLAR: 560 STAGE: 1
STAGE ELEV.-TOP: 531 ELEV. ROCK: 549
BOT: 515

TIME	GAGE PRESSURE P.S.I.	STATIC HEAD P.S.I.	ACTUAL PRESSURE P.S.I.	FLOW CU. FT. PER MIN
10:00AM				
:10	56	19	75	1.0
:15	56	19	75	1.0
10:20	56	19	75	1.1
10:25	"	"	"	1.2
10:30	"	"	"	1.2
10:35	"	"	"	1.2

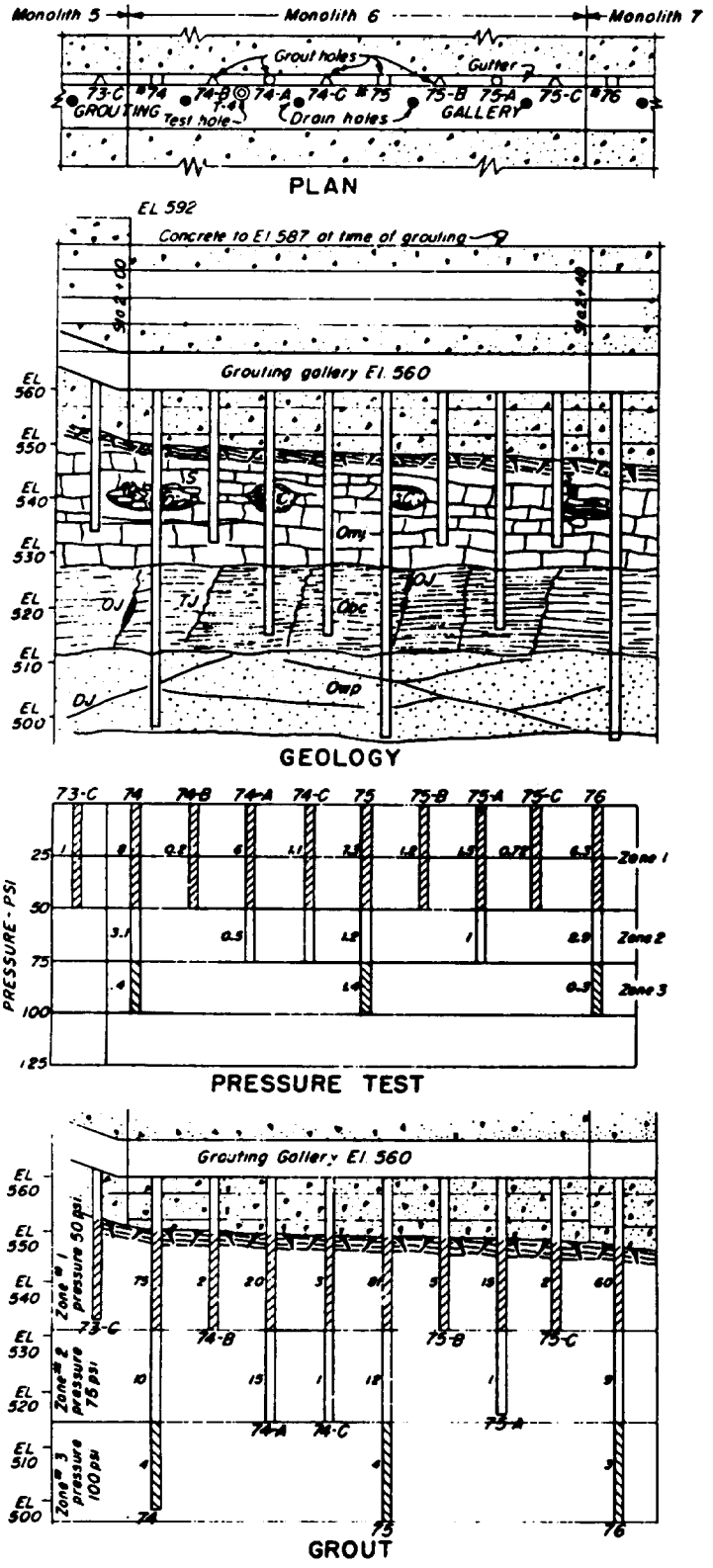
BOOK NO. 3
DATE: 6-10-69
INSPECTOR: John Doe
TIME RELIEVED:
RELIEVED BY:

REMARKS

Connected with hole #74 which flowed about 8 Cu. ft./min. (muddy)

Water from hole #74 at 1.0 Cu. ft./min. (muddy)
1.1 " " " (cleary)
" " " " (clear)

Figure 15-3. Sample notes for washing and pressure testing



EXPLANATORY NOTES

This is a typical monolith of an "as built" plan which illustrates a method of presenting foundation grouting performance. Comments are as follows relative to the various plan and sectional views shown:

a. PLAN The plan view indicates the location and purpose of all holes in a single monolith drilled during grouting operations.

Legend

- □ = primary hole
- ○ = secondary hole
- △ = tertiary hole
- ◉ = exploratory hole
- ● = drain hole

b. GEOLOGY The section indicates the geological and physical nature of the rock and contains pertinent grouting and drilling data such as points of water loss, cavities and the location of shattered rock.

Legend

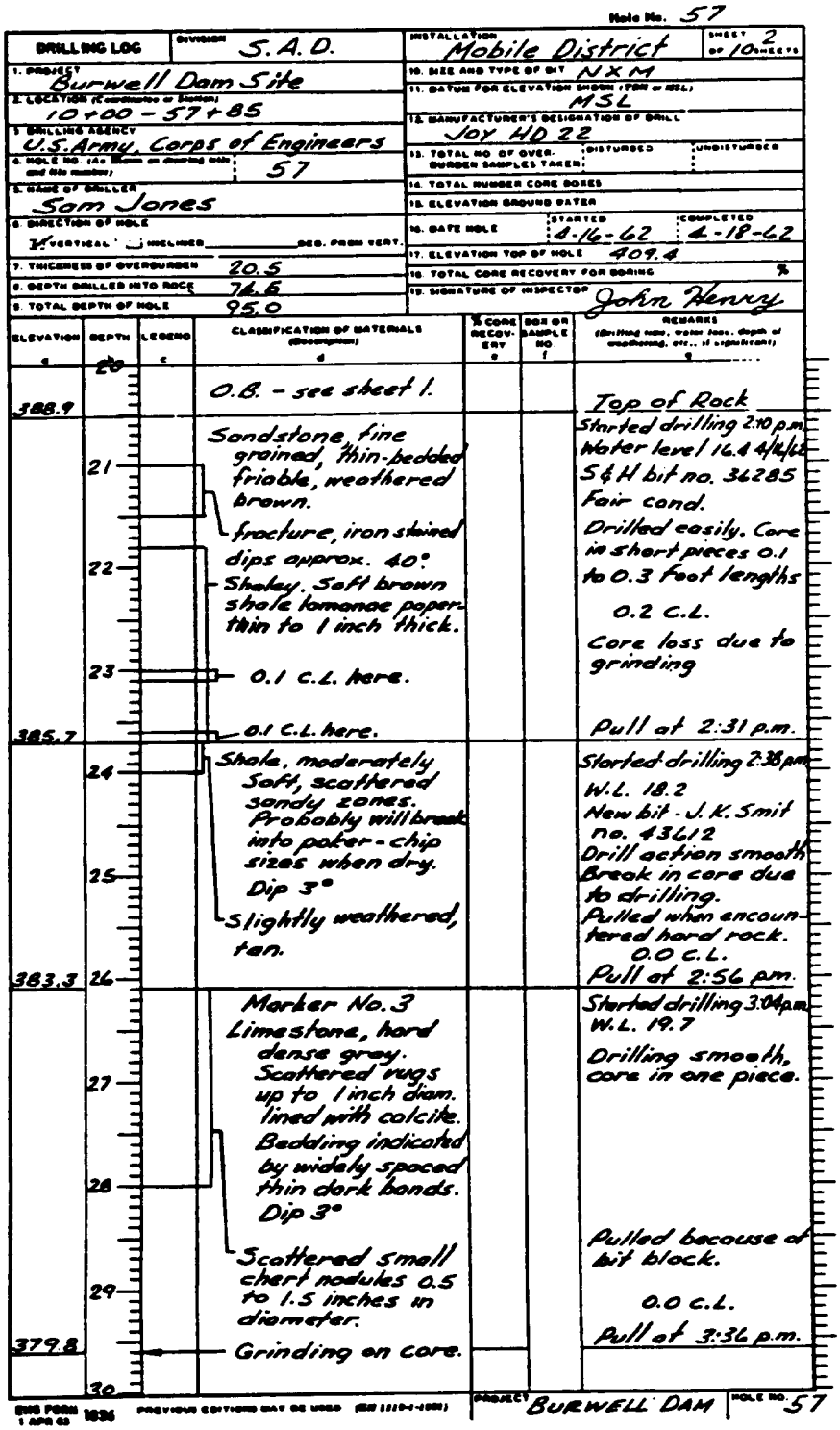
Geological: Omj = Ordovician, Moose jaw limestone
Obc = Ordovician, Bear claw silt - shale
Owp = Ordovician, Wolfe paw sandstone

Physical: C = Solution cavity
S = Shattered zone
TJ = Joint fracture - tight
OJ = Joint fracture - open
DJ = Diagonal joint

c. PRESSURE TEST This is a graphical presentation of the testing and washing operation made prior to grouting. The pressure (gage pressure as measured at the collar plus the static pressure of the fluid column.) used for each zone and the water loss in c.f.m. are shown.

d. GROUT This is a graphical presentation of the grouting operation indicating the depth of zones, the pressure (actual as above) and the bags of cement injected in each zone of each hole.

Figure 15-4. Record drawings of grouting operations



Hole No. 57

DRILLING LOG — Division: S.A.D. — Installation: Mobile District — Sheet 2 of 10 sheets

1. Project: Burwell Dam Site
2. Location: 10+00 - 57+85
3. Drilling Agency: U.S. Army, Corps of Engineers
4. Hole No.: 57
5. Name of Driller: Sam Jones
6. Direction of Hole: Vertical
7. Thickness of Overburden: 20.5
8. Depth Drilled into Rock: 74.5
9. Total Depth of Hole: 95.0
10. Size and Type of Bit: NXM
11. Datum for Elevation Shown: MSL
12. Manufacturer's Designation of Drill: Joy HD 22
13. Total No. of Overburden Samples Taken: Disturbed / Undisturbed
14. Total Number Core Boxes
15. Elevation Ground Water
16. Date Hole: Started 4-14-62 Completed 4-18-62
17. Elevation Top of Hole: 409.4
18. Total Core Recovery for Boring: %
19. Signature of Inspector: John Henry

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks
388.9	20		O.B. - see sheet 1.			Top of Rock
	21		Sandstone, fine grained, thin-bedded friable, weathered brown.			Started drilling 2:10 p.m. Water level 16.4 4/14/62 S&H bit no. 36285 Fair cond. Drilled easily. Core in short pieces 0.1 to 0.3 foot lengths
			fracture, iron stained dips approx. 40°			
	22		Shaley. Soft brown shale lamonae paper-thin to 1 inch thick.			0.2 C.L.
	23		0.1 C.L. here.			Core loss due to grinding
385.7			0.1 C.L. here.			Pull at 2:31 p.m.
	24		Shale, moderately soft, scattered sandy zones. Probably will break into poker-chip sizes when dry. Dip 3°			Started drilling 2:38 pm W.L. 18.2 New bit - J.K. Smit no. 43612 Drill action smooth Break in core due to drilling. Pulled when encountered hard rock. 0.0 C.L.
	25		Slightly weathered, tan.			
383.3	26					Pull at 2:56 pm.
	27		Marker No. 3 Limestone, hard dense grey. Scattered rugs up to 1 inch diam. lined with calcite. Bedding indicated by widely spaced thin dark bands. Dip 3°			Started drilling 3:04 pm W.L. 19.7 Drilling smooth, core in one piece.
	28		Scattered small chert nodules 0.5 to 1.5 inches in diameter.			Pulled because of bit block. 0.0 C.L.
379.8	29		Grinding on core.			Pull at 3:36 p.m.
	30					

DD Form 1836 — Previous editions may be used. — Project: BURWELL DAM — Hole No. 57

Figure 15-5. Core log sheet

15-2. Records.

a. Figure 15-4 is presented as a suggested method of recording the grouting accomplishments on as-built drawings. The drilling depths and the zones are indicated in the geological section. The pressure test data are indicated in the section designated as "Pressure Test," and all remaining data on the grouting operations have been included in the section marked "Grout." Other methods allowing more detail and at a larger scale may be preferable.

b. Records and reports required for drilling and grouting are:

(1) Information for operational purpose. This constitutes factual data on which to base decisions regarding the effectiveness of the grouting accomplished. The information will be reviewed by designers and geologists assigned to the project in order to determine whether or not departures should be made from the basic grouting plan.

(2) Records for payment. These data are used as a basis for determining the reimbursement due the contractor. The contractor will usually present a daily abstract of work accomplished indicating the length of drilling and the number of bags of cement injected in grouting and include a list of holes for which minimum payment is expected. The inspector's reports will ordinarily be used as a check. The contractor, however, may not elect to keep any record of the work done, and payment in that case will be based entirely on the inspector's reports.

(3) Data for foundation record. These data are required for permanent job records and for use in preparation of the "as built" drawings and for inclusion in the final foundation report.